# CR-IR 362 Service Manual

# Machine Description (MD)

Control Sheet

| Issue date | Revision number | Reason | Pages affected |
|---|---|---|---|
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| 02.20.2004 | 03 | Correction (FM4181) | 11 |
| 02.19.2007 | 07 | Change of document number, corrections (FM5097) | All pages |
| 09.30.2008 | 08 | Revision (FM5340) | 42, 57-83 |
| 09.30.2009 | 09E | Revision (FM5539) | 2, 13-91 |

# 1. Machine Overview

## 1.1 Features

### ■ Features of the Machine

- **The machine is network connectable via TCP/IP (100BASE-TX).**
- **A commonly available power source may be used to supply power to the machine.**
- **Improved throughput**

  To support institutions that conduct large amounts of processing, four shelves of cassette inserting entrances are provided to ensure improved throughout.
- **Removal of IP static electricity**

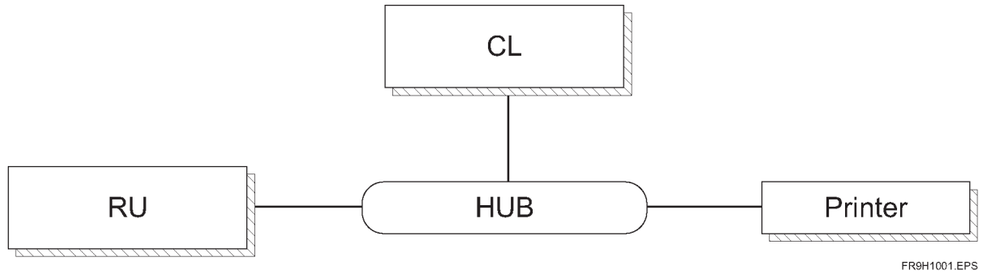
  IP static electricity is removed by the electrically-conductive ball bearing and bearing for each conveyance roller, as well as by the antistatic brush.

## 1.2 System Configuration

The machine (CR-IR362) may be connected to a network to achieve various system configurations.
Basic system configuration examples are described here.

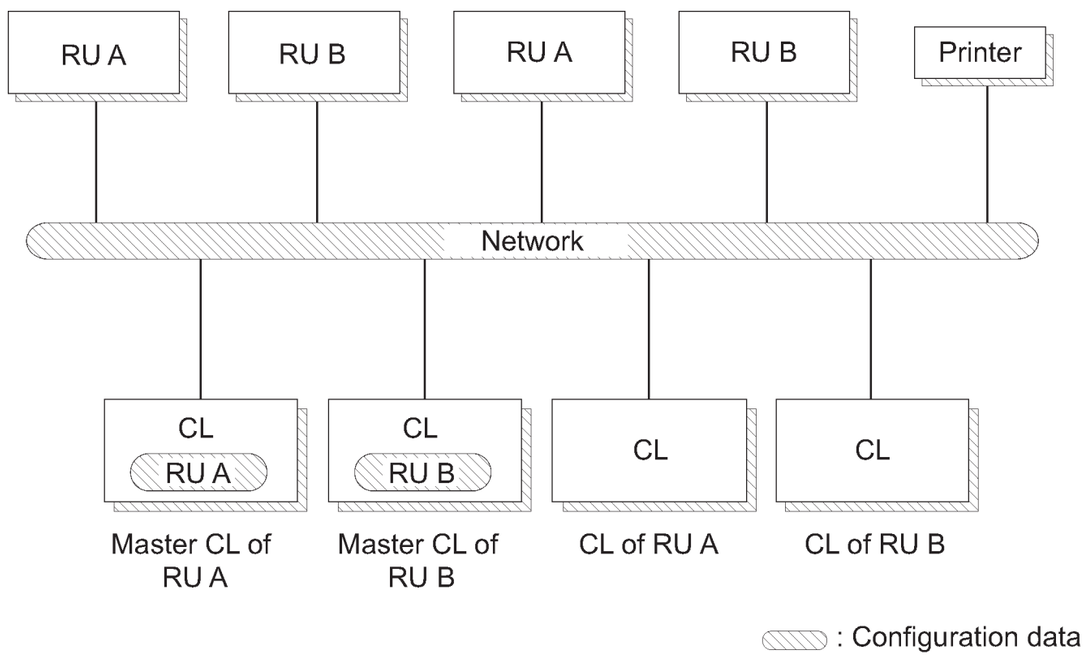
### ■ System Configuration Example (1)

The machine is connected to the CL via a network.
A connection with the CL is established over Ethernet (100Base-TX).



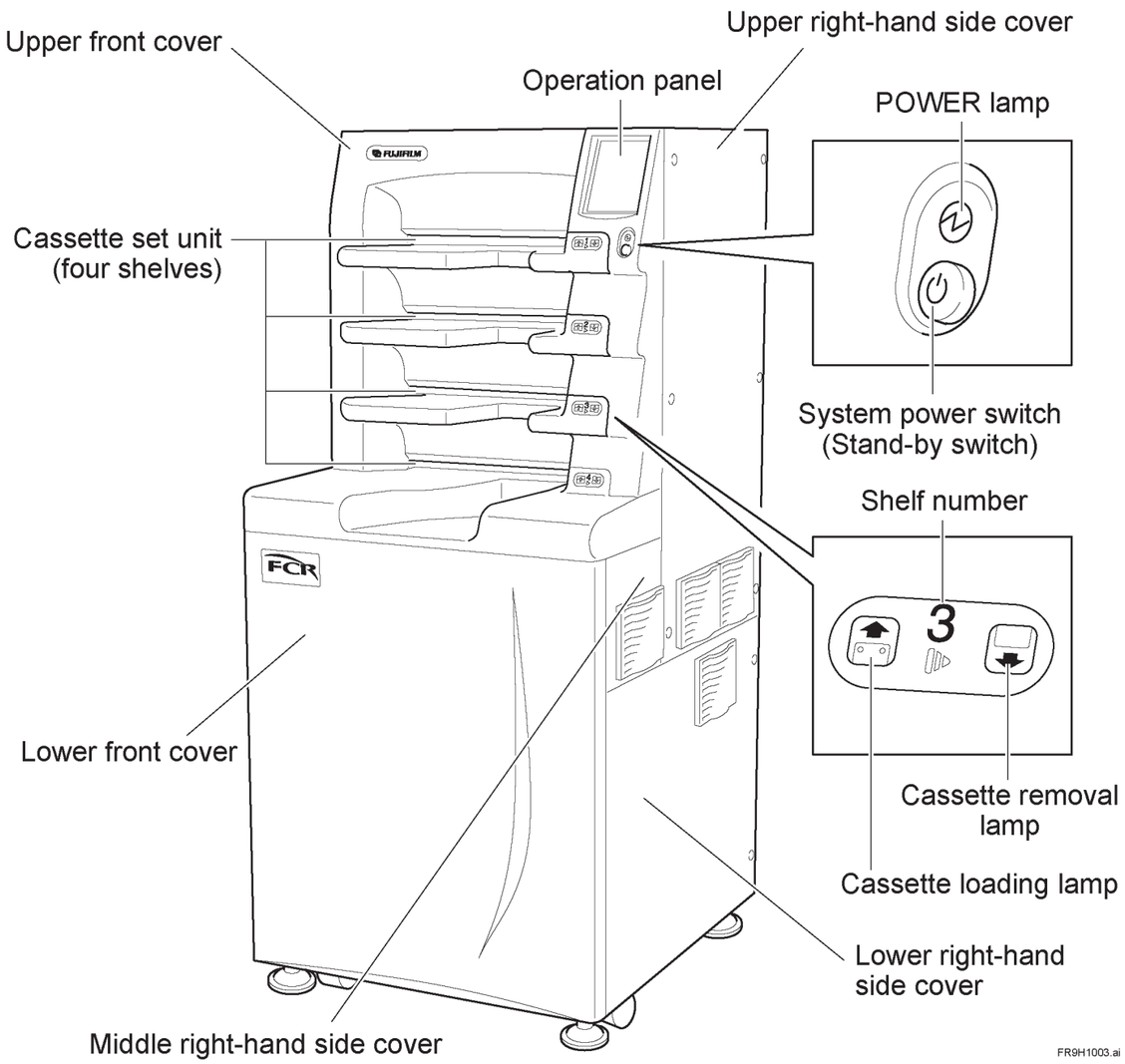

### ■ System Configuration Example (2)

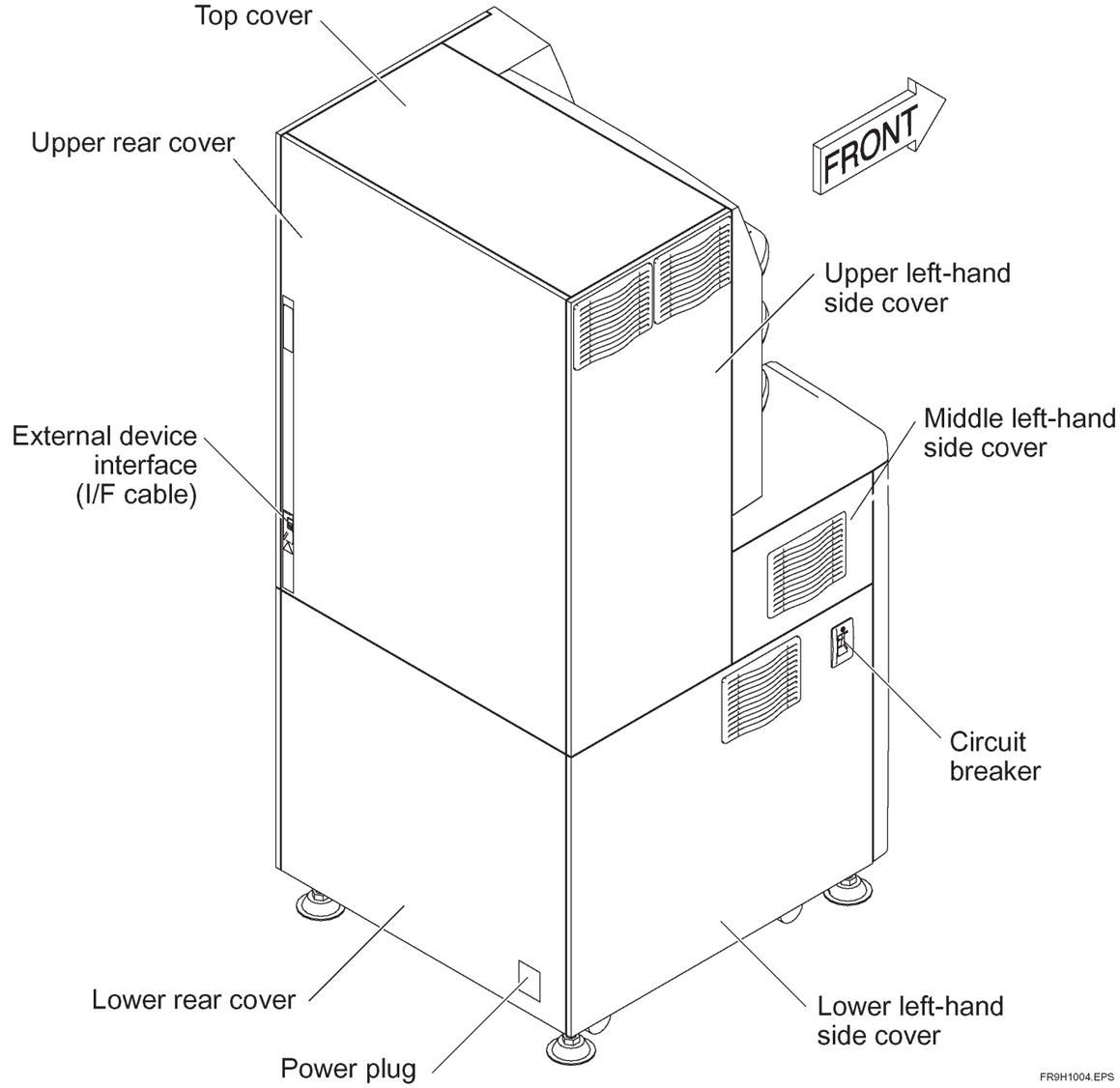
The machine may be connected to a plurality of CLs, including a single master CL.
The master CL contains the RU's configuration data and other information.



# 1.3 Overall Machine Configuration and Component Names

## ■ External View of Machine

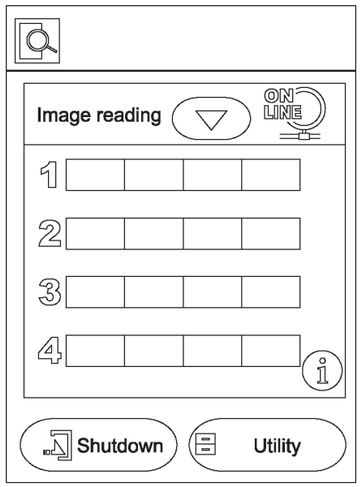


## ■ Nomenclature and Functions

| Name | Function |
|---|---|
| Operation panel | Operation panel for the RU main body. |
| POWER lamp | It is lit (in green) when the circuit breaker is pushed in the "I" position and power is turned ON. Since the circuit breaker remains in the ON state, the POWER lamp is always lit. |
| System power switch | Power switch for the RU. When this switch is pressed with the system power switch in the RU setting and the circuit breaker in the ON state, the RU is powered ON. |
| Cassette set unit (four shelves) | This unit accommodates cassettes that contain exposed IPs. A cassette may be loaded into an unloaded shelf of the cassette feeder. |
| Cassette loading lamp | It is lit (in green) when the RU starts up normally, indicating that cassette loading is ready. While it is not lit, a cassette cannot be loaded. |
| Cassette removal lamp | It is lit (in green) when removal of a processed cassette is ready. |
| Dust filter | It is attached in the entrance of the air-intake fan. |
| Circuit breaker | It should normally be in the ON position. |

## ■ Operation Panel

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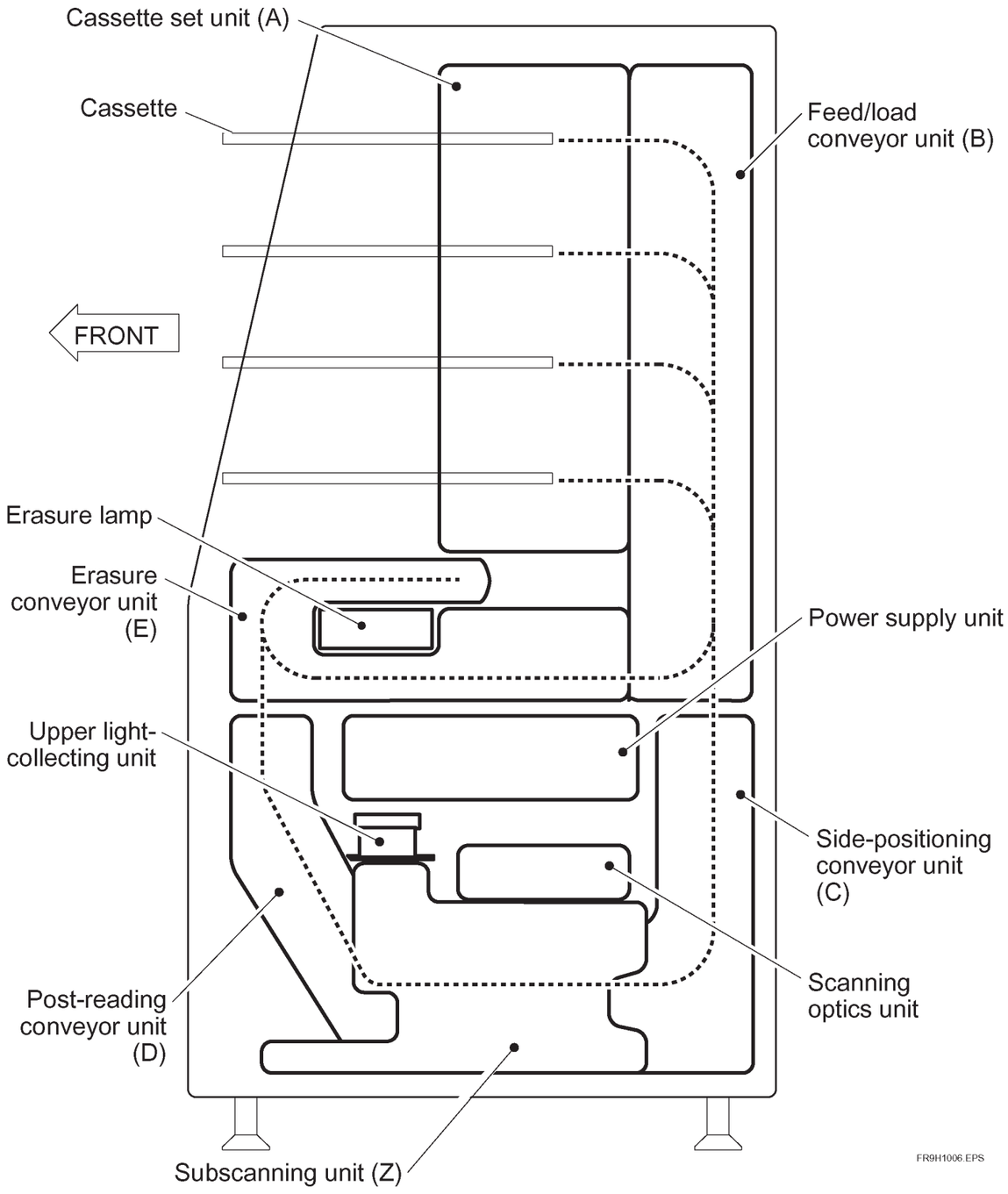
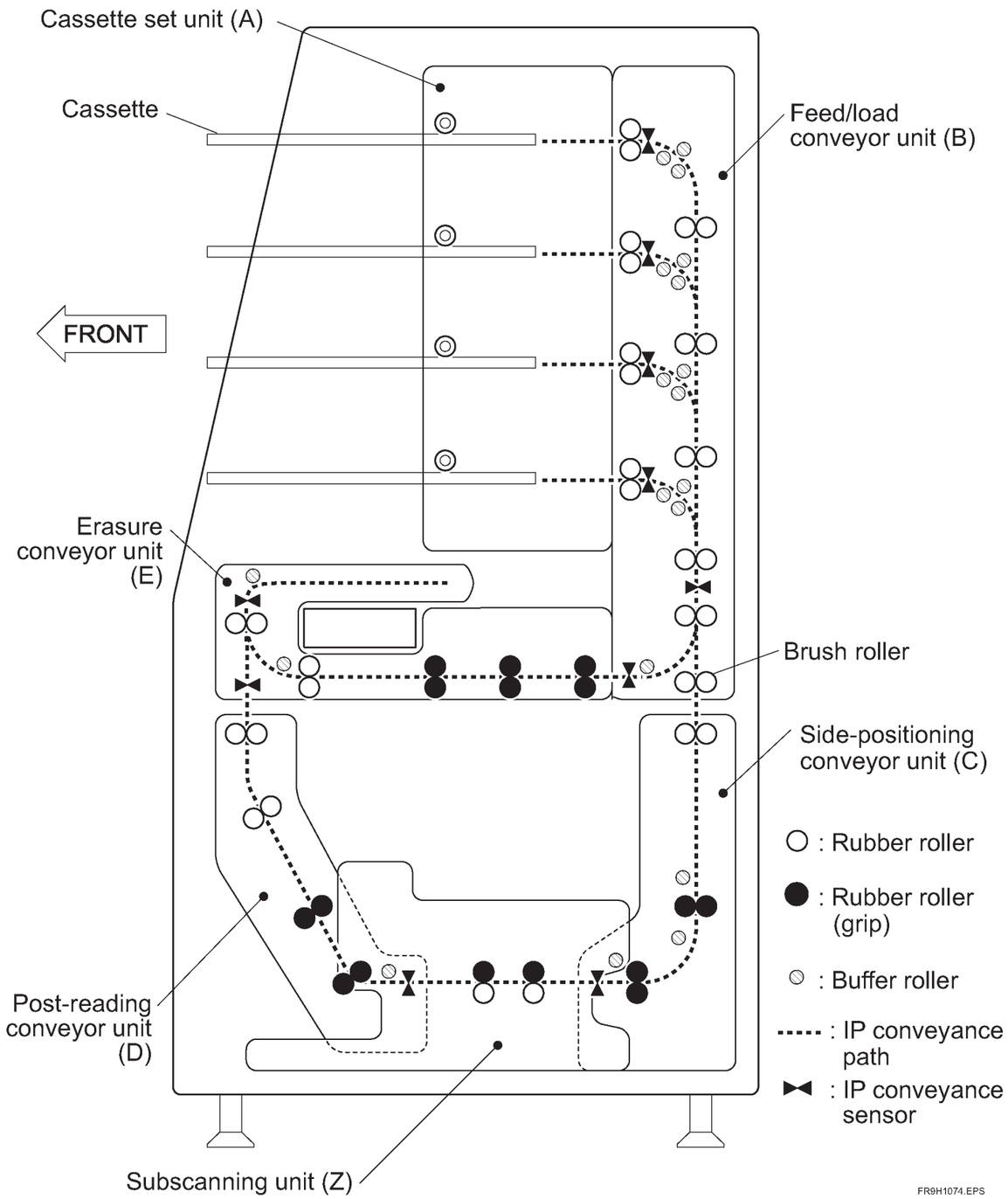
# 1.4 Machine Components

## 1.4.1 Unit Locations



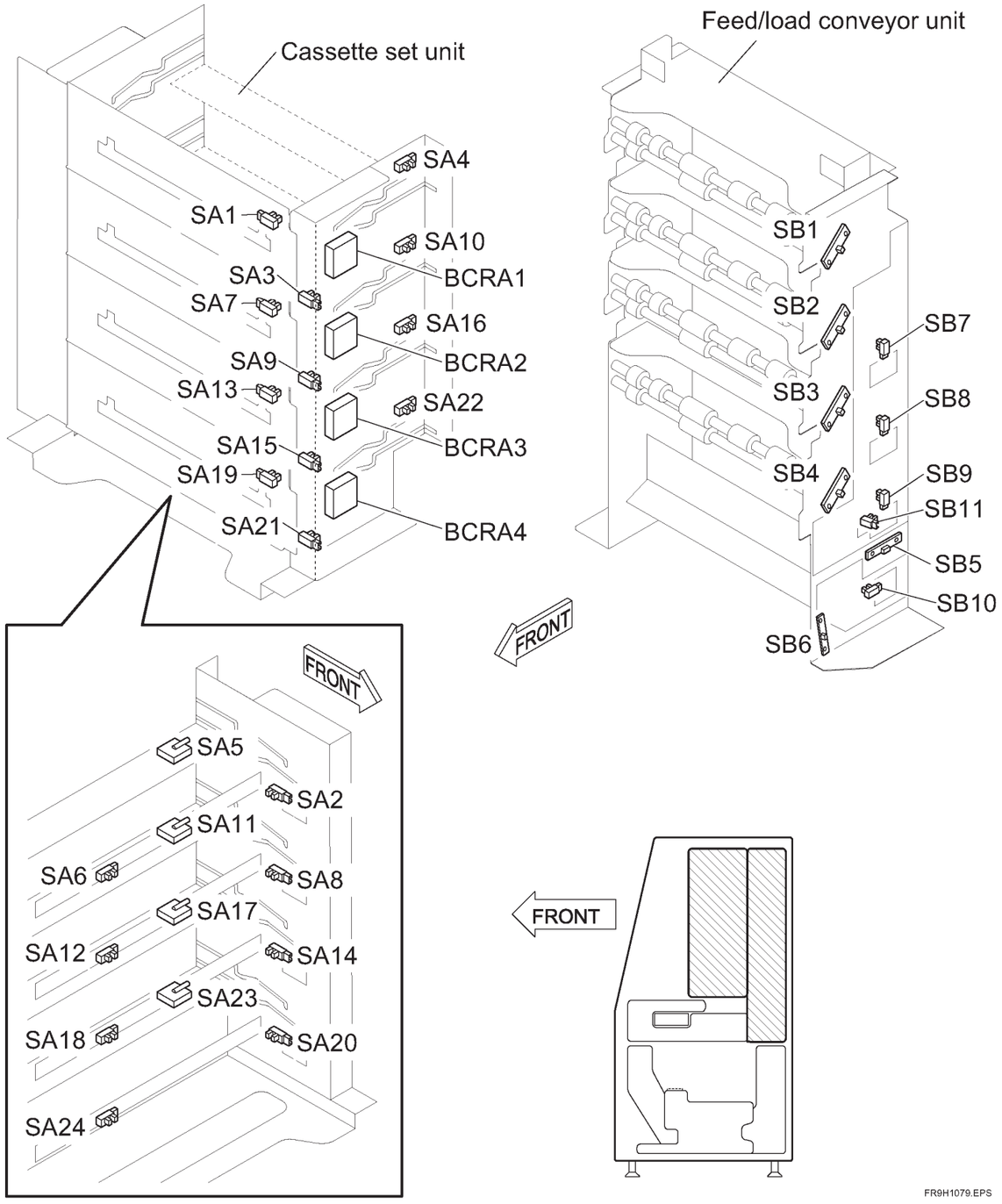
## 1.4.2 Roller Locations and Conveyance Paths



## 1.4.3 I/O Locations and Functional Descriptions

### ■ I/O Locations: Cassette Set Unit and Feed/Load Conveyor Unit

Locations of the sensors and barcode reader are illustrated below.




A list of sensor and barcode reader names and functions is presented below.

### ● Cassette set unit

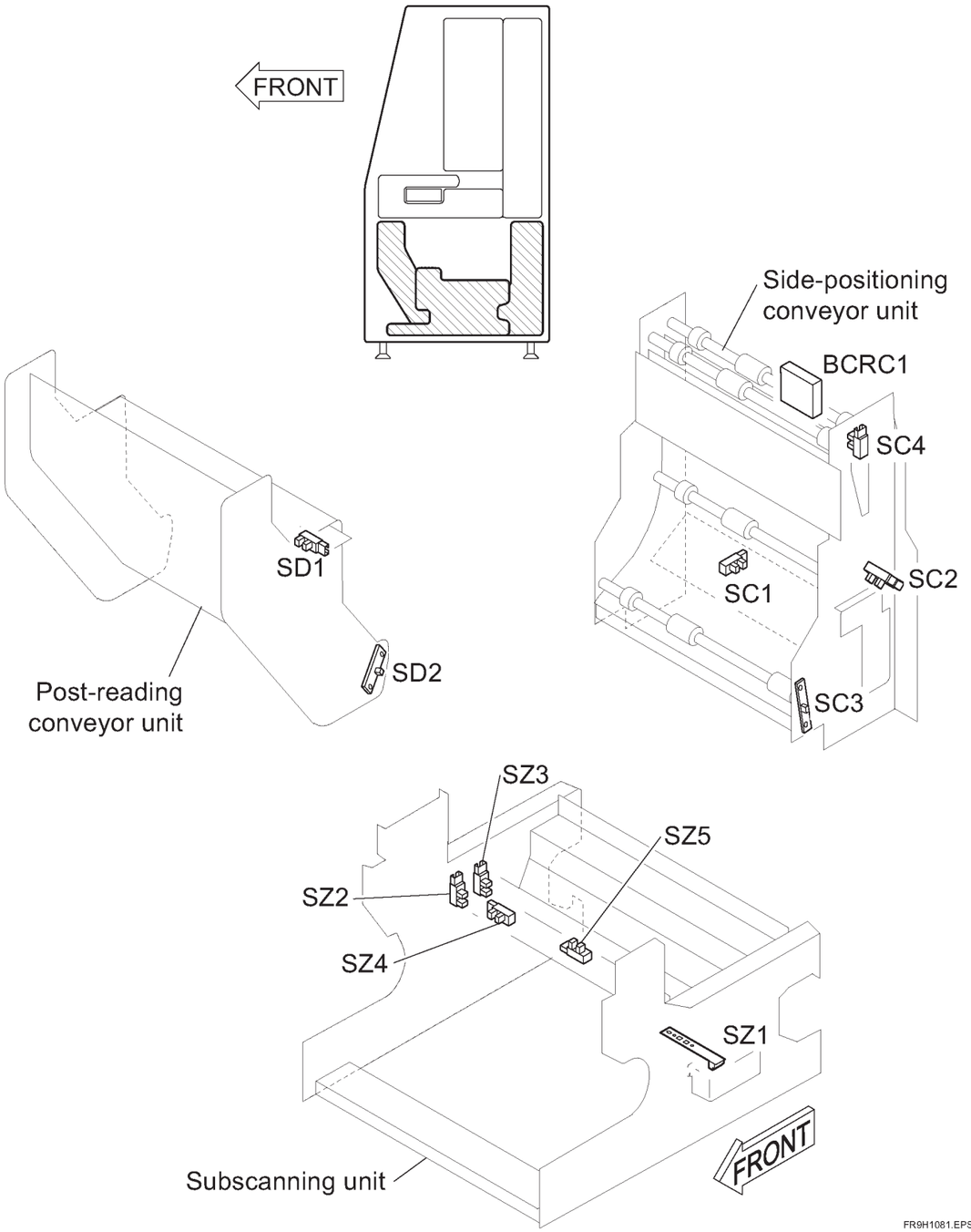
| Symbol | Name | Type | Function |
|---|---|---|---|
| SA1, 7, 13, 19 | Cassette ejection sensor | PI (5mm) | Detects that the cassette has been ejected. |
| SA2, 8, 14, 20 | Cassette IN sensor | PI (5mm) | Detects that the cassette has been inserted. |
| SA3, 9, 15, 21 | Cassette hold sensor | PI (5mm) | Detects that cassette hold has been completed. |
| SA4, 10, 16, 22 | Suction cup HP sensor | PI (5mm) | Detects that the suction cup arm is in its home position. |
| SA5, 11, 17, 23 | Suction sensor | Suction sensor | Detects that the suction cup has sucked the IP. |
| SA6, 12, 18, 24 | Inch/metric sensor | PI (5mm) | Determines the IP width. |
| BCRA1, 2, 3, 4 | Barcode reader | | Scans the barcode of a dual-surface IP cassette. |

### ● Feed/load conveyor unit

| Symbol | Name | Type | Function |
|---|---|---|---|
| SB1, 2, 3, 4 | IP feed/load sensor (cassette side) | PI (19mm) | Detects that an IP being conveyed is present. |
| SB5 | Pre-BCR IP sensor | PI (19mm) | Detects that an IP being conveyed is present. |
| SB6 | Pre-convergence IP sensor | PI (19mm) | Detects that an IP being conveyed is present. |
| SB7, 8, 9 | Path changeover shelf sensor | PI (5mm) | Detects the position of the path changeover guide. |
| SB10 | Convergence path changeover sensor | PI (5mm) | Detects the position of the convergence path changeover guide. |
| SB11 | Path changeover HP sensor | PI (5mm) | Detects the machine's initial position and the position of the path changeover guide. |

## ■ I/O Locations: Side-Positioning Conveyor Unit, Subscanning Unit, and Post-Reading Conveyor Unit

Locations of the sensors and barcode reader are illustrated below.

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A list of sensor and barcode reader names and functions is presented below.

### ● Side-positioning conveyor unit

| Symbol | Name | Type | Function |
|---|---|---|---|
| SC1 | Side-positioning mechanism HP sensor | PI (5mm) | Detects that the side-positioning mechanism is in its home position. |
| SC2 | Grip release HP sensor | PI (5mm) | Detects that the grip roller is in its home position. |
| SC3 | Side-positioning IP sensor | PI (19mm) | Detects that an IP being conveyed is present. |
| SC4 | Cleaning guide HP sensor | PI (5mm) | Detects that the cleaning guide is in its home position. |
| BCRC1 | Barcode reader | | Scans the barcode of an IP of single-surface type. |

### ● Subscanning unit

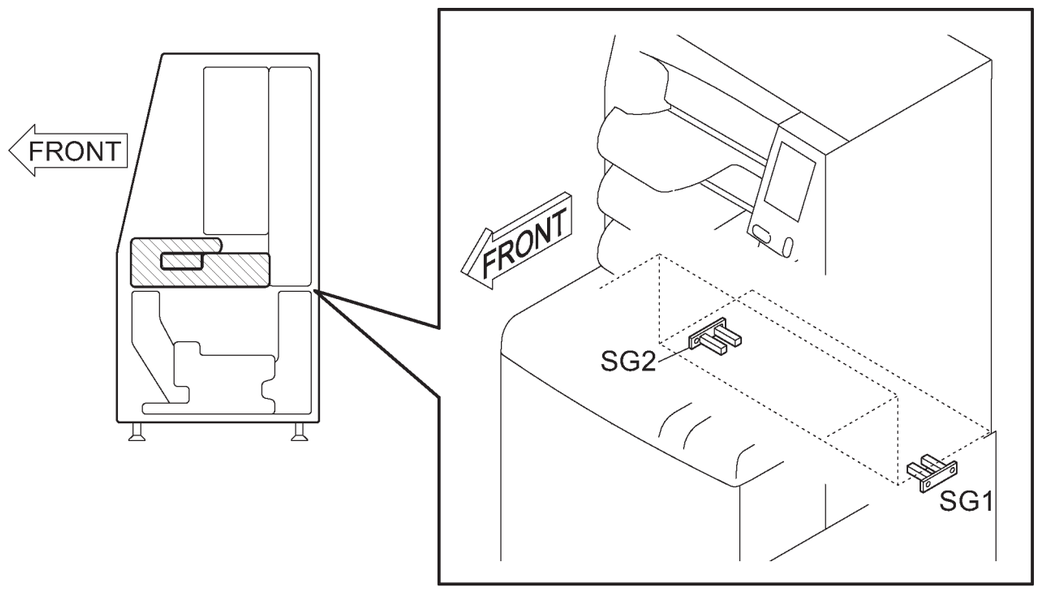
| Symbol | Name | Type | Function |
|---|---|---|---|
| SZ1 | IP leading-edge sensor | Laser light-receiving element | Detects the leading edge of the IP when it is read. |
| SZ2 | Driving-side grip release HP sensor | PI (5mm) | Detects the driving-side grip state. |
| SZ3 | Driven-side grip release HP sensor | PI (5mm) | Detects the driven-side grip state. |
| SZ4 | Dust-removal HP sensor | PI (5mm) | Detects that the antistatic member is in its home position. |
| SZ5 | IP stopper HP sensor | PI (5mm) | Detects that the IP stopper is in its home position. |

### ● Post-reading conveyor unit

| Symbol | Name | Type | Function |
|---|---|---|---|
| SD1 | Grip release HP sensor | PI (5mm) | Detects that the grip roller is in its home position. |
| SD2 | Post-reading conveyance IP sensor | PI (19mm) | Detects that an IP being conveyed is present. |

## ■ I/O Locations: Erasure Conveyor Unit and Housing

Locations of the sensors and thermistor are illustrated below.




A list of sensor and thermistor names and function is presented below.

### ● Erasure conveyor unit

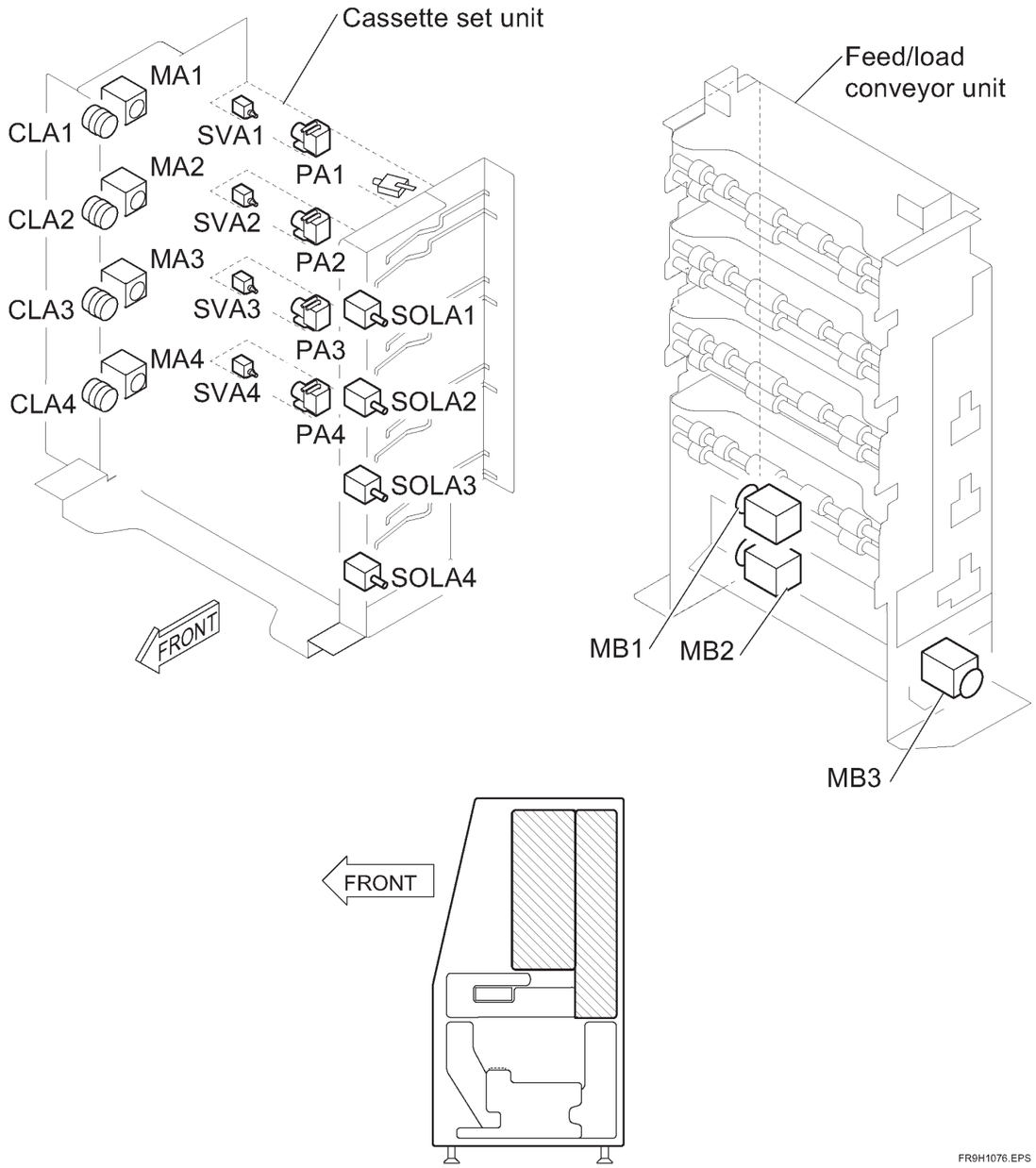
| Symbol | Name | Type | Function |
|---|---|---|---|
| SE1 | Post-reading conveyance standby IP sensor | PI (19mm) | Detects that an IP being conveyed is present. |
| SE2 | Switchback standby IP sensor | PI (19mm) | Detects that an IP being conveyed is present. |
| SE4 | Erasure side-positioning mechanism HP sensor | PI (5mm) | Detects that the side-positioning mechanism is in its home position. |
| SE5 | Grip release HP sensor | PI (5mm) | Detects that the grip roller is in its home position. |
| TSWE1 | Safety thermostat sensor | Thermal switch | Detects the temperature at the reflection plate of the erasure unit. |
| THE1 | Lamp temperature detection thermistor | Thermistor | Detects the temperature within the erasure lamp assembly. |

### ● Housing

| Symbol | Name | Type | Function |
|---|---|---|---|
| SG1 | Side-positioning entrance IP sensor | PI (19mm) | IP conveyance sensor |
| SG2 | “11x14 IP” determination sensor | PI (19mm) | IP conveyance sensor |

## ■ I/O Locations: Cassette Set Unit and Feed/Load Conveyor Unit

Locations of the motors, clutches, solenoids, pumps, and solenoid valves are illustrated below.




A list of motor, clutch, solenoid, pump, and solenoid valve names and functions is presented below.

### ● Cassette set unit

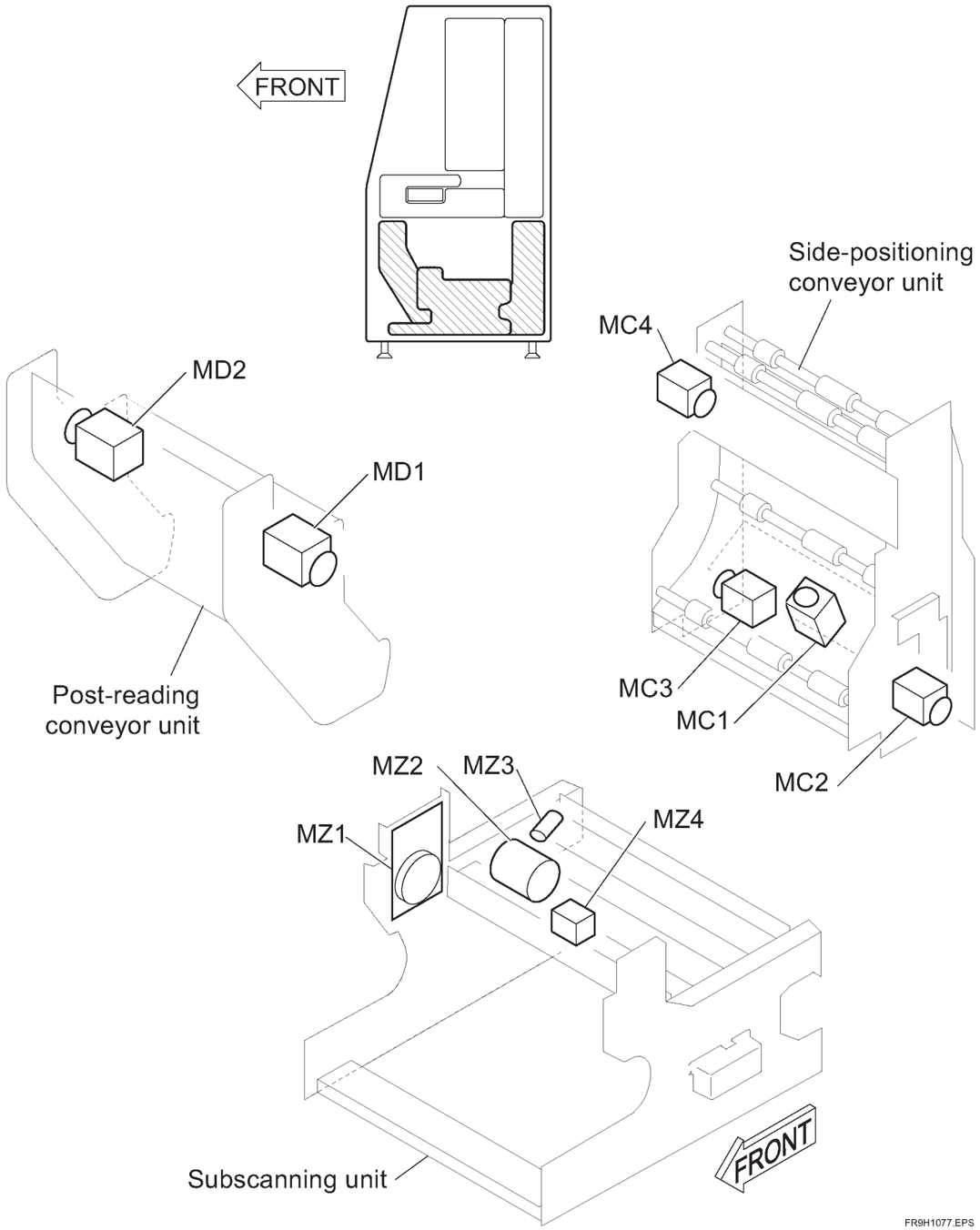
| Symbol | Name | Type | Function |
|---|---|---|---|
| SOLA1, 2, 3, 4 | Cassette hold solenoid | Power-down solenoid | Holds and releases the cassette hold pin. |
| MA1, 2, 3, 4 | Suction cup driving motor | Pulse motor | Drives the suction cup arm and ejects a cassette when the clutch is turned ON. |
| PA1, 2, 3, 4 | IP suction pump | Pump | Sucks when turned ON. |
| SVA1, 2, 3, 4 | IP leak valve | Solenoid valve | Leaks when turned ON. |
| CLA1, 2, 3, 4 | Cassette ejection clutch | Clutch | Transfers the motive power of the suction cup driving motor to the rollers during cassette ejection. |

### ● Feed/load conveyor unit

| Symbol | Name | Type | Function |
|---|---|---|---|
| MB1 | IP transport motor | Pulse motor | Transports an IP. |
| MB2 | IP transport motor | Pulse motor | Transports an IP. |
| MB3 | Convergence path changeover guide driving motor | Pulse motor | Changes the conveyance path. |

## ■ I/O Locations: Side-Positioning Conveyor Unit, Subscanning Unit, and Post-Reading Conveyor Unit

Locations of the motors are illustrated below.

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A list of motor names and functions is presented below.

### ● Side-positioning conveyor unit

| Symbol | Name | Type | Function |
|---|---|---|---|
| MC1 | Side-positioning motor | Pulse motor | Drives the side-positioning mechanism |
| MC2 | Grip release motor | Pulse motor | Grips and releases the grip roller. |
| MC3 | IP transport motor | Pulse motor | Transports an IP. |
| MC4 | Cleaning guide driving motor | Pulse motor | Drives the cleaning guide. |

### ● Subscanning unit

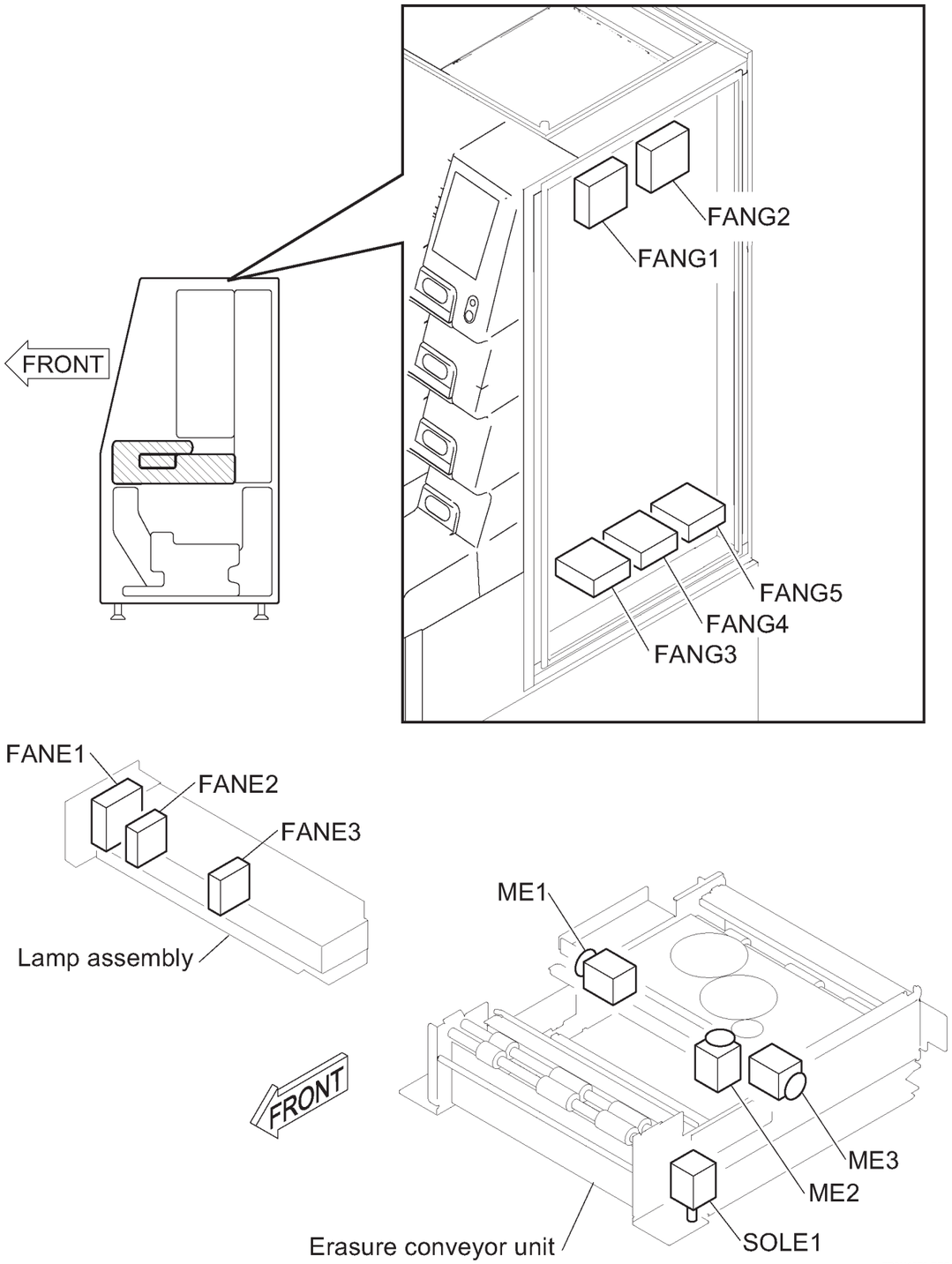
| Symbol | Name | Type | Function |
|---|---|---|---|
| MZ1 | Subscanning motor | FFM | Transports an IP. |
| MZ2 | Grip driving motor | DC motor | Grips and releases the driving and driven shafts. |
| MZ3 | Dust removal motor | DC motor | Removes dust deposited on the light-collecting guide and mirror. |
| MZ4 | IP stopper driving motor | Pulse motor | Drives the IP stopper. |

### ● Post-reading conveyor unit

| Symbol | Name | Type | Function |
|---|---|---|---|
| MD1 | Grip release motor | Pulse motor | Grips and releases the grip roller. |
| MD2 | IP transport motor | Pulse motor | Transports an IP. |

## ■ I/O Locations: Erasure Conveyor Unit and Housing

Locations of the motors, solenoids, and fans are illustrated below.




A list of motor, solenoid, and fan names and functions is presented below.

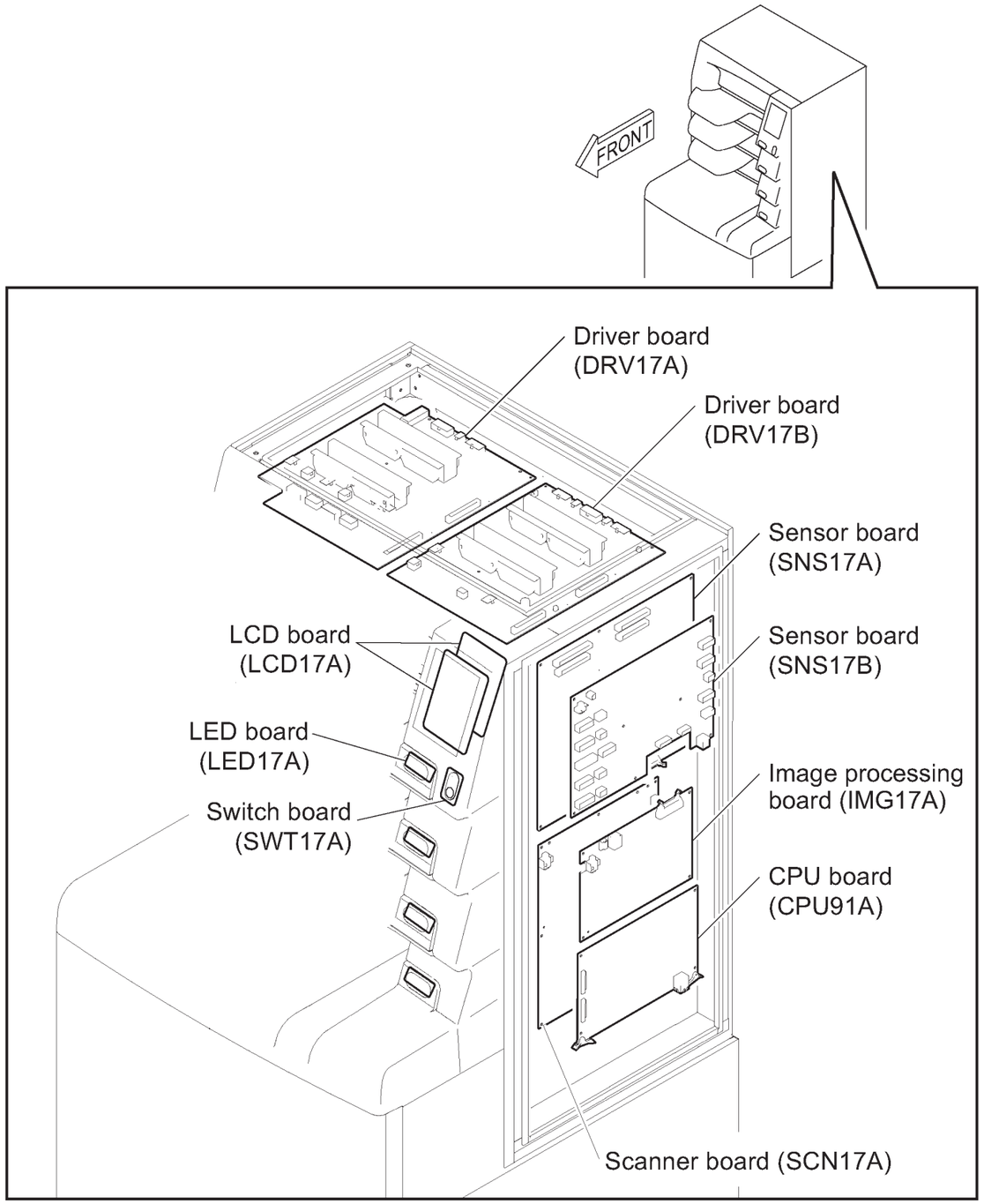
### ● Erasure conveyor unit

| Symbol | Name | Type | Function |
|---|---|---|---|
| ME1 | IP transport motor | Pulse motor | Transports an IP. |
| ME2 | Side-positioning motor | Pulse motor | Drives the side-positioning mechanism. |
| ME3 | Grip release motor | Pulse motor | Grips and releases the grip roller. |
| SOLE1 | Branch path changeover guide driving solenoid | Power-down solenoid | Effects path changeover. |
| FANE1 | Erasure unit cooling fan | DC fan | Cools the erasure unit. |
| FANE2 | Inverter cooling fan | DC fan | Cools the inverter board. |
| FANE3 | Inverter cooling fan | DC fan | Cools the inverter board. |

### ● Housing

| Symbol | Name | Type | Function |
|---|---|---|---|
| FANG1, 2, 3, 4, 5 | Board cooling fan | DC fan | Cools the boards within the housing. |

## 1.4.4 Board Locations

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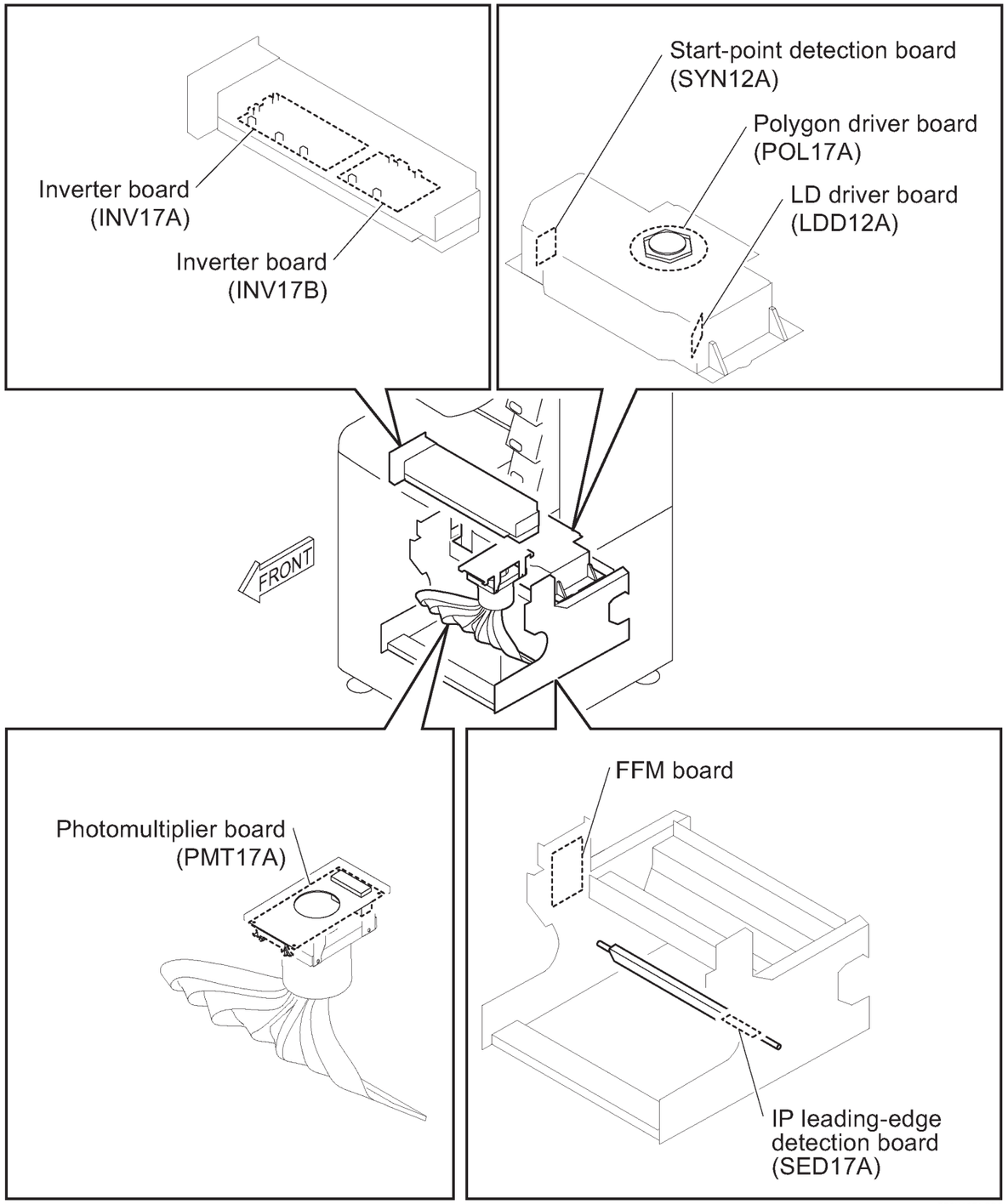


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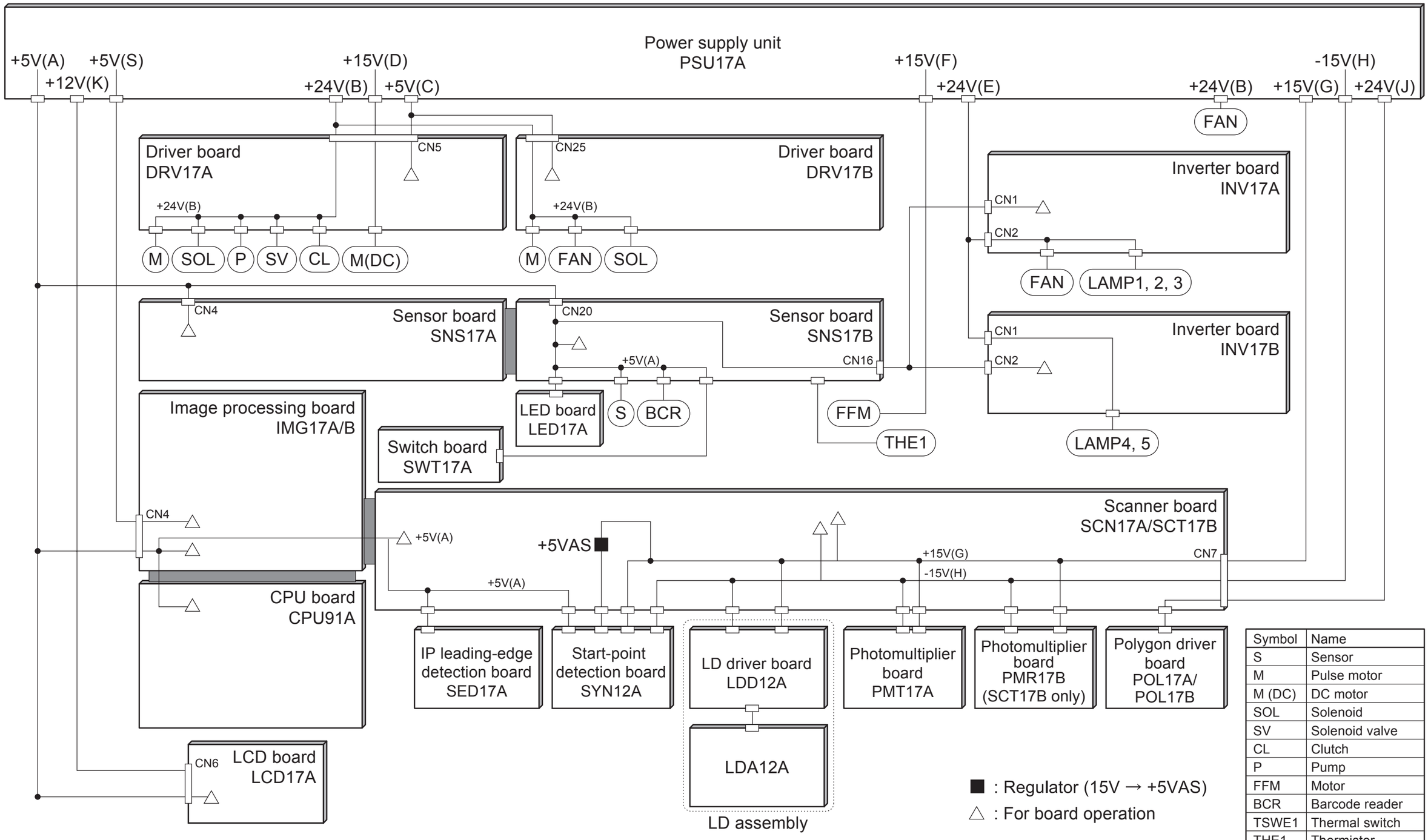
# 1.5 System Block Diagram

## ■ Power Supply System (#20001 or Later)




| Symbol | Name |
|---|---|
| S | Sensor |
| M | Pulse motor |
| M (DC) | DC motor |
| SOL | Solenoid |
| SV | Solenoid valve |
| CL | Clutch |
| P | Pump |
| FFM | Motor |
| BCR | Barcode reader |
| TSWE1 | Thermal switch |
| THE1 | Thermistor |

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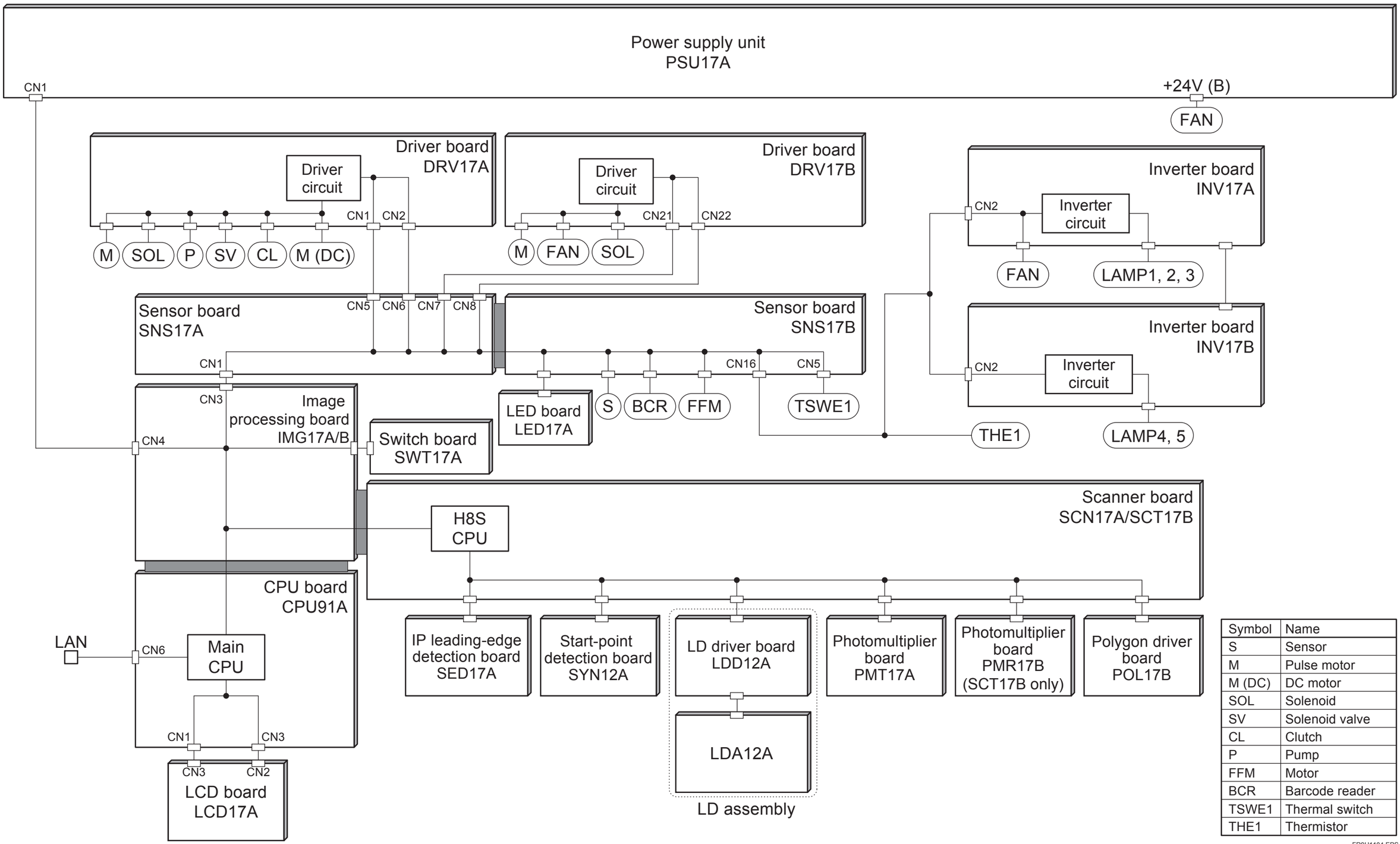
## ■ Signal System (#20001 or Later)




| Symbol | Name |
|---|---|
| S | Sensor |
| M | Pulse motor |
| M (DC) | DC motor |
| SOL | Solenoid |
| SV | Solenoid valve |
| CL | Clutch |
| P | Pump |
| FFM | Motor |
| BCR | Barcode reader |
| TSWE1 | Thermal switch |
| THE1 | Thermistor |

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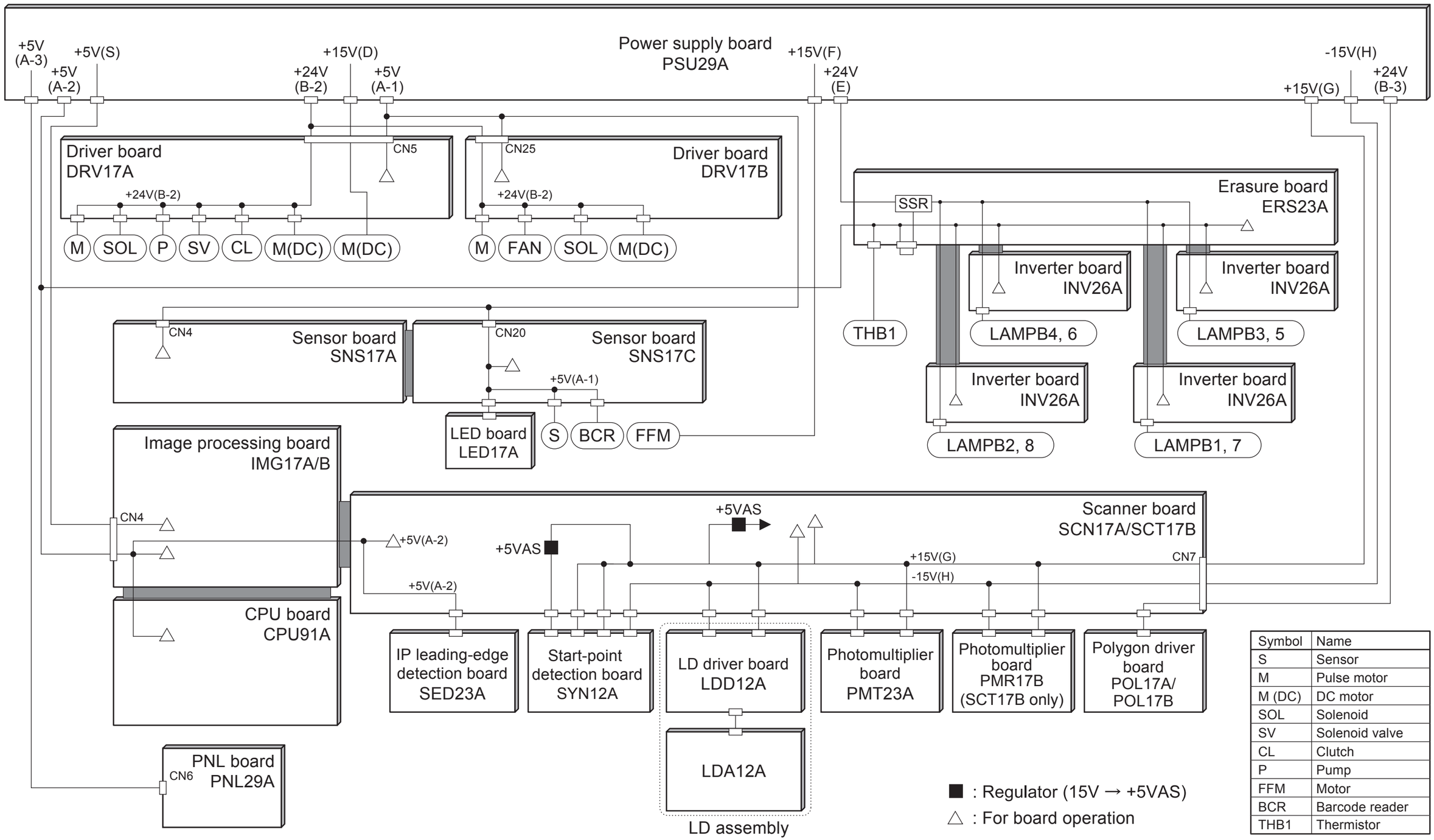
## ■ Power Supply System (#50001 or Later)




| Symbol | Name |
|---|---|
| S | Sensor |
| M | Pulse motor |
| M (DC) | DC motor |
| SOL | Solenoid |
| SV | Solenoid valve |
| CL | Clutch |
| P | Pump |
| FFM | Motor |
| BCR | Barcode reader |
| THB1 | Thermistor |

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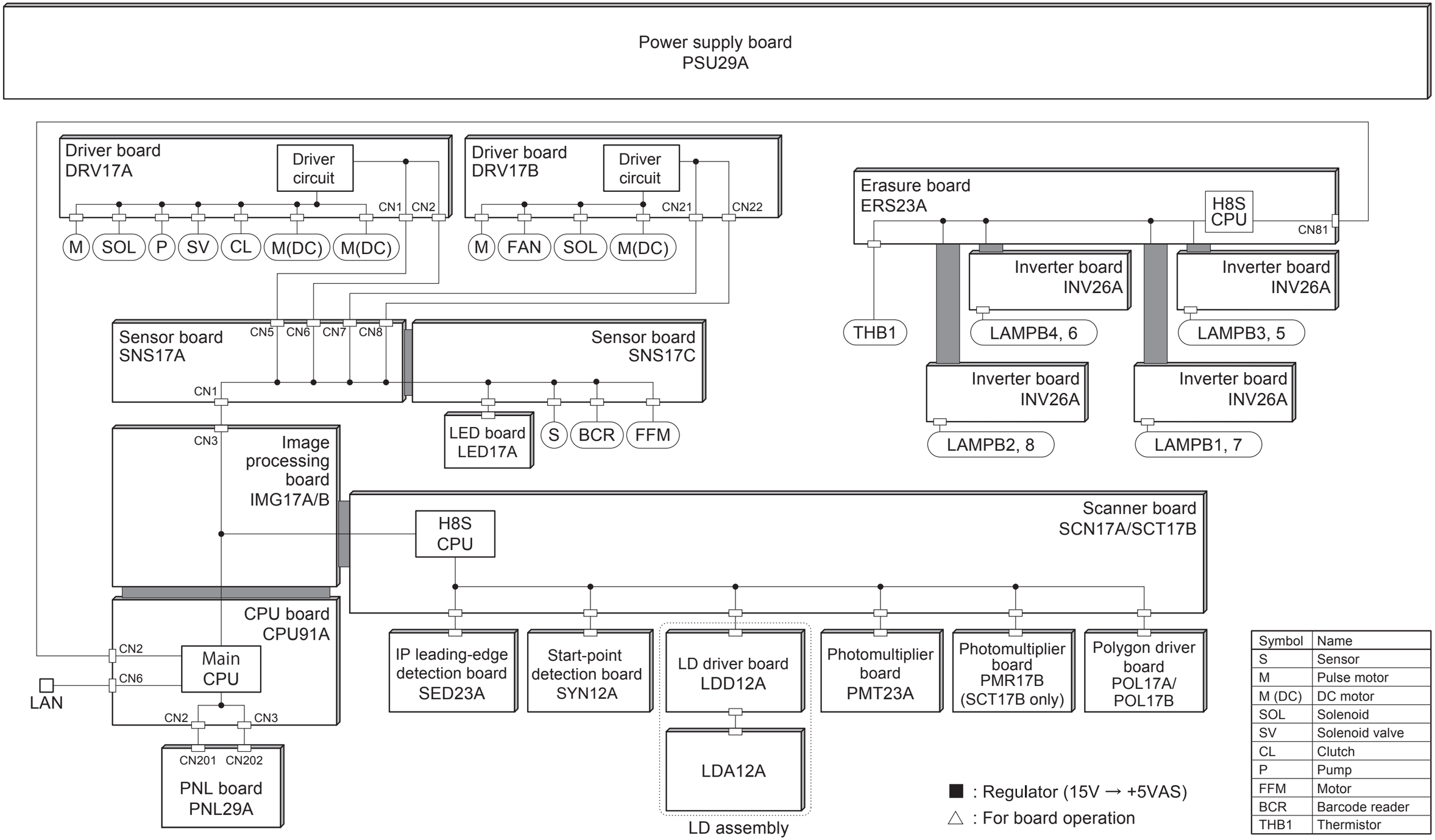
## ■ Signal System (#50001 or Later)




| Symbol | Name |
|---|---|
| S | Sensor |
| M | Pulse motor |
| M (DC) | DC motor |
| SOL | Solenoid |
| SV | Solenoid valve |
| CL | Clutch |
| P | Pump |
| FFM | Motor |
| BCR | Barcode reader |
| THB1 | Thermistor |

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